

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE May 1996		3. REPORT TYPE AND DATES COVERED Final Report (07-95 to 05-96)
4. TITLE AND SUBTITLE Rightsizing at Wilford Hall Medical Center: A Study to Determine the Appropriate Number and Mix of Inpatient Beds			5. FUNDING NUMBERS	
6. AUTHOR(S) Captain Scott A. Zuerlein, USAF, MSC				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Wilford Hall Medical Center/59 MDW 2200 Bergquist Dr STE 1 Lackland AFB, TX 78236-5300			8. PERFORMING ORGANIZATION REPORT NUMBER 33b-96	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) US Army Medical Department Center and School Bldg 2841 MCCS HRA US Army Baylor Pgm in HCA 3151 Scott Road Fort Sam Houston, TX 78234-6135			10. SPONSORING/1 AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES DTIC QUALITY INSPECTED 2				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited			12b. DISTRIBUTION	
13. ABSTRACT (Maximum 200 words) Wilford Hall Medical Center (WHMC) has an inpatient operational capacity of 528 beds and an average daily census of 286 (1 April 1995-28 January 1996). Since 1989 the average occupancy rate has dropped from 59 percent to 49 percent. These trends are similar to those found in civilian settings. In addition, facility budgets have been reduced for anticipated utilization management savings and managed care initiatives are in place. Pressures are present to reduce the size of the military medical service. In an effort to get out ahead of the pack, the Commander of WHMC appointed three "rightsizing" teams (medical/surgical, maternal/child, mental health) to (1) develop a medical center with an inpatient capacity of 350 beds or less and (2) reallocate the resources to the outpatient setting. In April 1996 each team presented a concept briefing to the Commander. These outlined a 326 bed inpatient facility with a heavy focus on reducing unnecessary admissions. A three phase implementation process would achieve this sizing. First is the cutting of the fat. The second phase involves education and training. The final phase further reduces inpatient capacity. This paper traces the Medical/Surgical Rightsizing Team's effort to create a 326 bed medical center.				
14. SUBJECT TERMS Rightsizing, downsizing, organization structure, re-structuring			15. NUMBER OF PAGES 55	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT N/A	18. SECURITY CLASSIFICATION OF THIS PAGE N/A	19. SECURITY CLASSIFICATION OF ABSTRACT N/A	20. LIMITATION OF ABSTRACT UL	

19970501 152

U.S. ARMY - BAYLOR UNIVERSITY

RIGHTSIZING AT WILFORD HALL MEDICAL CENTER:
A STUDY TO DETERMINE THE APPROPRIATE NUMBER AND MIX OF
INPATIENT BEDS

A GRADUATE MANAGEMENT PROJECT SUBMITTED TO
THE FACULTY OF THE HEALTH SERVICES ADMINISTRATION PROGRAM
IN CANDIDACY FOR THE DEGREE OF
MASTER OF HEALTH SERVICES ADMINISTRATION

BY

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JULY 1996

ABSTRACT

Wilford Hall Medical Center (WHMC) has an inpatient operational capacity of 528 beds and an average daily census of 286 (1 April 1995 - 28 January 1996). Since 1989 the average occupancy rate has dropped from 59 percent to 49 percent (42 percent in December 1995). These trends are similar to those found in civilian settings. In addition, facility budgets have been reduced for anticipated utilization management savings. Managed care initiatives are in place, the TRICARE contract began 1 November 1995 and active duty and adult health maintenance organizations have been established. Pressures are present to reduce the size of the military medical service. In an effort to get out ahead of the pack, the Commander of WHMC appointed three "rightsizing" teams (medical/surgical, maternal/child and mental health) to (1) develop a medical center with an inpatient capacity of 350 beds or less and (2) reallocate the resources to the outpatient setting.

Between 5 April and 18 April 1996, each team presented a concept briefing to the Commander. They outlined a 326 bed inpatient facility with a heavy focus on reducing unnecessary admissions through outpatient and outreach services. A three phase implementation process would achieve this "sizing." First is the "cutting of the fat", which includes reducing medical/surgical beds from 374 to 240 and mental health beds from 63 to 40. The second phase involves education and training to focus practice patterns on eliminating unnecessary admissions and prolonged lengths of stay. The elimination of unnecessary admissions and reduced lengths of stay allow for the further reduction in inpatient capacity to 167 medical/surgical beds for an overall total of 326 beds.

This paper traces the Medical/Surgical Rightsizing Team's effort to create a 326 bed medical center.

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I. INTRODUCTION

a. Conditions Which Prompted The Study

Downsizing, rightsizing, re-engineering, mergers, ward closures, bed reductions. Pick a term, or create one of your own. In today's health care environment each of these processes is leading to similar results: the reduction in the size and number of inpatient health care facilities. This reduction in inpatient capacity is the result of many different pressures and changes in the health care environment. Pressure is being exerted by those who finance health care (both governmental and private sources) and those who make money with the delivery of health care (managed care organizations). Significant changes include technological advancements and new treatment protocols. These pressures and changes have led to the current environment where overcapacity is seen as unnecessary overhead which drives up the overall cost of health care.

Prior to the turn of this century, hospitals were seen as a place for the poor to go to die. Charitable organizations ran these institutions as a place to provide comfort, to the extent possible, but recovery was not the standard. As 1900 rolled around, an individual had a 50/50 chance of leaving a hospital alive--this of course meant half of those entering a hospital died before escaping its walls (Jonas 1992, 49). It is important to remember this 50/50 chance was an improvement over previous times. In fact, wealthy individuals were treated in the home for any sickness or disease they developed.

From this less than glorious start, hospitals have become the source of continued life for many. Today 97 percent of patients admitted to a hospital leave alive (Jonas 1992, 49).

Technological advancements through the 1900's led to hospitals becoming the "doctors workshop." The hospital became the site where the doctor and the patient came together to administer/receive the definitive care to treat illness and preserve life. In less than 100 years the hospital was transformed from a place for the poor to die, to a place for those wealthy enough to afford it (or those with insurance) to maintain/continue life.

Technological advancements, the "doctors workshop" role and federal government support led to a steady increase in the number of hospitals and total hospital beds through the 1970's (Fuchs 1974, 80). In 1972 Victor Fuchs wrote the average number of beds per hospital had increased by fifty percent in the previous twenty years (Fuchs 1974, 91). Admissions from 1950 to 1970 rose steadily at a rate of one percent per year (Fuchs 1974, 96). Roemers Law (Roemer 1961) provided a well used term for those interested in increasing the size of health care institutions, "a built bed is a filled bed (Jonas 1992, 54)." In light of this last statement, a study published in the New England Journal of Medicine in 1986 becomes all the more interesting. This study states empirical evidence exists showing as many as 25 percent of all patient days provided by hospitals (between 1974 and 1982) were not medically necessary (Williams and Torrens 1993, 161).

It was amidst this steady increase in use and size of hospitals that Wilford Hall Medical Center (WHMC) has its roots. The original structure was designed in 1949 as a "modern nine-story steel reinforced structure (Dyke 1960, iv)." The original structure was a 500-bed facility on a 1,000 bed chassis. The completion, in 1961, of the teaching wing brought the bed total to 1,009. As designed, WHMC was, and is, the largest medical center in the Department of Defense health system. It was also the first teaching facility in the Air Force. In 1963, the

hospital was named Wilford Hall USAF Hospital in honor of Major General Wilford Hall. In 1969 the hospital was redesignated Wilford Hall USAF Medical Center. Finally, in 1993 the 59th Medical Wing was established as WHMC's unit designation (Fact Sheet, 1).

The stated vision for WHMC is "A Dynamic Team of health Care Professionals Who Care About Healthcare and Do Whatever is Necessary to Improve It." This is shortened to a motto of "People Who Care, We Just Do It." WHMC has four stated missions in support of the vision. The first is readiness, the provision of training to enable assigned personnel to be capable of responding to any worldwide contingency as directed by the Department of Defense (DOD) or the Air Force (AF). Secondly, WHMC must operate a comprehensive and cost effective health care system. Third, WHMC offers education and training programs for a wide range of health care professionals. Fourth, WHMC maintains a clinical research program. Each of these missions are interwoven and support the all encompassing patient care mission of the AF Medical Service (AFMS), whether that care be peacetime, wartime or disaster response. Each mission plays a part in the readiness of the medical staff to successfully respond to the next patient or tasking.

Within the purely patient care aspect of the mission, WHMC partners with Brooke Army Medical Center (BAMC) and three Air Force Base clinics (Brooks, Kelly and Randolph) to serve the beneficiary population. The combined catchment area (40 mile radius) contains an eligible beneficiary population of 191,899 (Resource Analysis and Planning System [RAPS], 7 March 1996). Secondly, WHMC is the primary referral center for the Air Force, receiving patients from throughout the world. In addition, the Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]) has designated WHMC as a national Specialized Treatment Service (STS)

for Bone Marrow Transplant (BMT) and Solid Organ Transplant. Finally, WHMC is one of three Level I Trauma Centers serving San Antonio, Bexar County and south Texas.

Even with this rich history and large patient population, WHMC is fighting to survive. San Antonio has two major military medical centers. The obvious question is why does San Antonio need two major military facilities, especially with neither facility running near capacity.

Both WHMC and Brooke Army Medical Center (BAMC) were under consideration for closure or consolidation by the Base Realignment and Closure Committee (BRAC) in 1995. It is conjectured that only the realization of WHMC's value as a national asset prevented this step from being proposed by the BRAC. Closely related to the BRAC threat was the advent of TRICARE. In order for the military health care system to continue in its current form, it must be successful under TRICARE. Part of that plan is making the optimal use of resources--especially facilities, manpower and dollars. These forces, along with others, drove the need for a new strategic vision and plan. The resulting strategic management correction consisted of steps taken to reinforce WHMC's position as a national asset. This included the development of a Trauma Consortium, various programs to provide outreach care to the region and an outreach program into medically underserved areas in Central and South America.

In an effort to make better use of existing space and personnel, Major General P.K. Carlton, Commander of the 59th Medical Wing (WHMC), requested his staff study and reduce the number of inpatient beds. This occurred in the first six months of 1995. The end result of the effort was a ninety-one bed reduction in operating capacity, leaving a bed capacity of 600. The ninety-one beds represented 20 percent of the non-critical care and specialty care beds in WHMC. However, additional reduction potential was demonstrated on 15 July 1995 when two of four

building wings were shut down because of an air conditioning failure. With some effort, the remaining two wings absorbed the patient population of 344. The day before the outage, the census was 371, the day after, the census was 310. Coupled with the imperative to reduce costs and shift resources to the ambulatory setting, this event rekindled General Carlton's vision of a much smaller inpatient capability. It resulted in direction to his senior staff to "rightsize" WHMC as well as initiating this graduate management project.

b. Statement of the Problem

According to the Quarterly Management Summaries (produced by the Resource Management Office), since 1984 the average daily patient load has dropped 36 percent, from 612

Table 1 - Workload Data

Wilford Hall Medical Center - Workload Data									
<u>Year</u>	<u>Staffing</u>	<u>Admissions</u>	<u>Occupied Bed Days</u>	<u>Avg Length of Stay</u>	<u>Avg Daily Patient Load</u>	<u>Births</u>	<u>Surgery</u>	<u>Same Day Surgery</u>	<u>ALOS w/out SDS</u>
1984		22,264	223,531	10.04	612				
1985	3939	21,704	227,675	10.49	624				
1986	3957	22,334	241,654	10.82	662				
1987		23,693	248,162	10.47	680	1,512	12,978		
1988	3964	23,967	229,897	9.59	628	1,584	13,812		
1989		24,560	221,240	9.01	606	1,536	15,035		
1990	4194	25,917	218,593	8.43	599	1,596	15,882		
1991	4325	25,603	196,132	7.66	537	1,632	16,341	2,054	
1992	4482	27,432	210,118	7.66	574	1,656	17,144	2,028	
1993		27,220	168,031	6.17	459	1,572	17,206	3,699	6.99
1994	4779	26,853	156,046	6.00	429	1,644	17,184	4,398	6.75
1995	4805	25,746	143,050	5.56	392	1,620	17,767	4,907	6.63
Source: Quarterly Management Summary, 59th Medical Wing/Resource Management Office									

patients to 392 patients. In the same period the average length of stay as dropped 45 percent, from 10.04 days to 5.56 days. Occupied bed days dropped 36 percent, from 223,531 in 1984 to

143,050 in 1995. Same-day surgeries increased 239 percent, from 2,054 in 1991 to 4,907 in 1994. Admissions followed the same trend leading to the third consecutive year of reductions. Table 1 contains additional information about each of these categories. Obviously, WHMC has more inpatient capacity than demand requires and optimal use of resources allow. The problem is what to do about this excess capacity?

c. Literature review

Current literature supports several primary themes concerning hospital inpatient capacity and downsizing, sometimes referred to as rightsizing. Overbedding is common in all types of health care delivery systems throughout the United States and the world, and it is a concern when considering the continually rising costs of health care. Overbedding refers to a situation when the inpatient capacity of a given geographical area far exceeds the demand. Health care provided in an inpatient setting is declining in relation to overall health care usage. This inpatient decline is being countered by increased utilization and emphasis, on outpatient care. Personnel often find themselves caught up in the middle of the turmoil created by downsizing or rightsizing. These people issues must also be dealt with for organizations to survive. Finally, downsizing and rightsizing is found in all health care delivery systems to include academic centers and the military.

Note: “Downsizing” is a term often found in the literature referring to the reduction in capacity, both in bed size and personnel, in response to financial pressures. The “rightsizing” term used for WHMC indicates the desire to make the best use of available resources to meet the mission. The downsizing and rightsizing definition provided here was not extracted from one particular source but rather from the actions associated with the words in the various references.

Hospital size, and how it is determined, is based on many different factors. Two criteria, the patient days of care required by the population and the working occupancy level deemed appropriate for the hospitals of a given area, are more concrete (Jonas 1992, 53). Others are less concrete and lead to questions concerning the validity of a hospital's operating size. These include the demands of physicians, local wealth, available resources and funds, civic pride and competition (Jonas 1992, 54). Clearly, determining hospital size is not an exact science. The shift in focus from inpatient centered care to outpatient centered care has left much of the country with overbedded health care systems. In Chicago, average hospital occupancy rates fell from 72 percent in 1991 to 64.4 percent in 1993, with some hospitals having occupancy rates as low as 41 percent in 1992 (Moore 1994, 48). The first sentence in a recent "Hospitals and Health Networks" magazine article stated "The Windy City is overbedded." Chicago currently has 5.76 beds per 1,000 people while current conditions would drive 2.56 beds per 1,000, and in a one hundred percent managed care environment it would be 1.75 beds per 1,000 (Cerne 1994, 48). In Southern California the average daily census is now 48 percent, with 51 percent of the region's facilities operating in the red (Cerne and Montague 1994, 38). Washington D.C. could cut 1,100 of its 4,700 hospital beds and still operate at only 80 percent of capacity (Cerne and Montague 1994, 38). The Connecticut Commission on Hospitals and Health Care recently approved the plan of Greenwich Hospital to build a replacement facility which would eliminate unneeded acute-care beds, a 45 percent reduction from the current facility (Pallarito 1995, 24). George Washington University Medical Center plans to cut its number of beds in half, to 250. They expect 75 percent of their current inpatient population to be served on an outpatient basis by the year 2000 (Cerne and Montague 1994, 40).

Overbedded systems are not only found in the United States, Great Britain is also considering reductions and transfers of capability to outpatient focused settings. In England, predictions for the year 2002 estimate patient referrals to hospitals at 20 percent less than today, with 60 percent of operations being done on a day-surgery basis (17 percent in 1990) and 80 percent of surgeries will be minimal access (Dean 1994, 47). The need for inpatient beds has already been reduced by the faster input (shorter lengths of stay) of patients. Between 1974 and 1988 there was a 22 percent reduction in medical beds with a 22 percent increase in the number of patients treated (Dean 1994, 47). In London, the Tomlinson report concluded that between 2,000 and 5,000 of London's acute sector beds should be closed. A similar report expects between 3,000 and 7,000 beds to close in Scotland by the year 2001 (Shaw 1993, 27). The Tomlinson report also stated that it would be preferable to close entire hospitals as opposed to reducing the services at a few (Shaw 1993, 27).

Academic and military medical centers are also feeling the crunch. The first disadvantage of teaching facilities is they are more expensive than those that just treat patients (Montague 1993, 41). In order to survive, academic medical centers must become leaders in developing cost effective methods of care while maintaining a patient load to fulfill educational requirements (Montague 1993, 36, 41). Johns Hopkins and George Washington University have already been cited as centers who are focusing efforts on the shift to outpatient care and eliminating inpatient capacity. This presents a big dilemma, academic centers cannot teach with empty beds, but the whole focus is shifting patients into an outpatient setting.

In the military arena, containment of medical costs and rightsizing is also a primary concern. F. William Brown cited downsizing as part of the paradigm of the 1990's (Brown 1994,

625). A need exists to install a market driven way of delivering health care while reducing the size of the force and closing facilities (Brown 1994, 626). The question remains, "What is the best way to organize resources and provide access to quality care (Lanier and Boone 1993, 121)?" From an organizational perspective, the problem is threefold; (1) how to maintain medical readiness, (2) how to best provide access to care, and (3) how to provide care at the greatest value to the government (Lanier and Boone 1993, 123). A continued shift away from inpatient care to outpatient care appears to be the best solution. In an October 1993 interview with the USAF Medical Service Digest, General Carlton (then as the command surgeon for the Air Education and Training Command (AETC)) stated his primary goal as surgeon was to "take care of our people." This was to be done by making the system as cost-effective and efficient as possible (View 1993, 17). Within the AETC managed care strategy was a "right-sizing" program. This was developed on the assumption that all managed care initiatives were based on cost, quality, and access issues (View 1993, 17). The right-sizing takes place when facilities are reorganized and personnel are shifted within the command to make better use of them (View 1993, 17). Reese Air Force Base (AFB) and its 64th Medical Group was labeled the first right-sized AF facility. This small hospital became a comprehensive ambulatory care center; all inpatient work was conducted at local civilian hospitals (View 1993, 17). General Carlton stated "we are proud of our right-sizing program; it is really cutting overhead and giving us a chance to do a better, more cost-effective job (View 1993, 17-18)." As Commander of WHMC and the Lead Agent for TRICARE Region VI, General Carlton has restated this strategy of right-sizing. He envisions a regional system where the small facilities close all inpatient beds and become clinics while providing increased services to the base through partnership with the regional

medical centers. The elimination of inpatient capacity has already taken place at some Air Force facilities. As the result of a tornado, McConnell AFB, Kansas, received the second "Super Clinic" in the Air Force. This clinic has outpatient surgery capability while relying on local civilian institutions for inpatient needs (Gillert 1995, 20). The McConnell Clinic closely follows the design of the clinic at Malmstrom AFB, Montana which opened its doors in February of 1991, with the subsequent establishment of ambulatory surgery capability (personal experience). This followed a two year absence of inpatient capability and a reliance on the local civilian hospitals. The future of military medicine depends on this type of local and regional partnerships to include the TRICARE component of the Military Health Services System (MHSS).

Over the last 25 years there has been a steady decline in the occupancy rates of short term, community hospitals. Between 1980 and 1990, average hospital occupancy rates declined nearly 11 percent and admissions reached their lowest point in ten years (1989), both while the

population of the United States

increased by 25 million

(Williams and Torrens 1993,

159, 160). Table 2 presents the

change patterns in relation to

the number of hospitals, number

of beds and number of

admissions between 1950 and

1994. According to Steven

Table 2 - U.S. Hospital Characteristics

Characteristics of Hospitals in the United States (AHA Registered)				
		# of		
	# of	Beds	dmissions	
Year	Hospitals	(1,000's)	(1,000's)	
1950	6,788	1,456	15,675	
1960	6,876	1,658	25,027	
1970	7,123	1,616	31,759	
1975	7,156	1,466	36,157	
1980	6,965	1,365	38,892	
1985	6,872	1,318	36,304	
1990	6,649	1,213	33,774	
1994	6,374	1,128	33,125	
Source: 1995/96 AHA Hospital Stat, p. 2				

Jonas, author of An Introduction to the U.S. Health Care System, in 1990 the United States had

1.2 million beds in about 6,700 hospitals, an average daily census of 850,000 and an overall occupancy rate of 70 percent, this was compared with 1978 figures of 1.4 million beds, 7,015 hospitals, a daily census of 1.04 million and a 75.5 percent occupancy rate (Jonas 1992, 52). More recently, the average occupancy in a not-for-profit, multi-hospital system decreased from 58.4 percent in 1993 to 56.6 percent in 1994 (Marion Merrell Dow Inc. 1995, 4). Average occupancy for ten reporting, for-profit multi-hospital systems was 44.3 percent in 1993, down from 45.8 percent in 1992 (Marion Merrell Dow Inc. 1995, 20). Government-owned multi-hospital systems had an average occupancy rate of 62.2 percent in 1993 compared with 65.8 percent in 1992 (Marion Merrell Dow Inc. 1995, 20).

One component of the system which has influenced this trend is the health maintenance organization (HMO). Some commercial HMO's, for those under 65, have cut annual utilization rates for inpatient care from 500 days per 1,000 covered lives to 125-150 days per 1,000 covered lives (Coile 1995, 62). Medicare HMO's, for those 65 and older, have had an even greater impact on inpatient utilization rates. These rates have dropped from an annual rate of 3,000 inpatient days per 1,000 covered lives to 700-900 per 1,000 covered lives (Coile 1995, 62). Dick Davidson, President of the American Hospital Association, put it bluntly, "inpatient care is no longer the dominant locus of our institutions' activities (Davidson 1995, 66)." Ultimately, hospitals are becoming intensive care units, used only for the most seriously ill or for procedures that can't be done on the outside (Lumsdon 1992, 19).

As utilization has shifted away from inpatient services, outpatient services have increased in scope and utilization. This growth in outpatient care has been occurring for many years. In the

early 1970's, Fuchs cited the growing importance of outpatient care, reporting that between 1962 and 1971 outpatient visits doubled (Fuchs 1974, 91). Williams and Torrens state that outpatient services in hospitals were virtually nonexistent in 1960. Today they account for about 22 percent of total hospital revenue; and, if the trend continues, outpatient revenue will exceed inpatient revenue by the year 2003 (Williams and Torrens 1993, 136). In 1990 an estimated 50 percent of

all surgeries were done on an outpatient basis; for 1995 this estimate was 60 percent (Lumsdon 1992, 18). Robinson provides statistics showing inpatient days exceeding outpatient visits by 41 percent in 1972; and in 1990 outpatient visits

Table 3 - Outpatient Service Utilization

Service Utilization in Acute Care Hospitals, 1972-1990			
	1972	1982	1990
# of Hospitals	5,843	5,801	5,384
Acute Inpatient Services			
Beds	859,344	968,807	867,361
Days	235,608,458	262,549,209	206,134,770
Surgeries	---	---	10,844,916
Subacute Inpatient Services			
Units	503	737	1,129
Beds	24,900	46,094	60,694
Days	7,218,598	15,493,884	19,836,883
Source: Robinson, "The Changing Boundaries of the American Hospital," p.261			

exceeded inpatient days by 46 percent (Robinson 1994, 262). Table 3 provides information concerning the utilization of services in acute care hospitals between 1972 and 1990. Table 4 presents information concerning outpatient services offered by acute care hospitals. Finally, in a September 1995 announcement concerning the \$364 million Medicaid bailout of Los Angeles County's health care system, the chief goal was cited as "restructuring the system to make it a more outpatient-intensive system (Green 1995, 1)."

Table 4 - Hospitals Offering Non-Acute Care

Percentage of Acute Care Hospitals Offering Outpatient, Home Health, and Subacute Services, 1972-1990			
Services	1972	1982	1990
Outpatient			
Surgery	NA	NA	94.5
Clinic	27.5	42.4	85.2
Rehabilitation	6.9	32.7	51.4
Alcohol/chemical dependency	NA	12.2	20.5
Hemodialysis	NA	23.2	26.6
Patient Education	NA	NA	86.4
Community health promotion	NA	NA	77.1
Worksite health promotion	NA	NA	53.9
Outpatient psychiatry	11.1	14	19.7
Psychiatric consultation/education	10.2	22.4	30.4
Home health			
Home health	6.2	12.5	35.5
Hospice	NA	8.5	16.1
Subacute inpatient			
Nursing-home unit	8.6	12.7	21
Psychiatric partial hospitalization	8.1	10.4	13.5

Source: Robinson, "The Changing Boundaries of the American Hospital," p. 262

Several changes and pressures have caused hospitals to venture into the outpatient arena; the development of new technology, the trend toward a larger health care vision, and the expanding role of the community hospital. One response has been the increased scope and location of outpatient services (Griffith 1992, 4). Russell Coile believes shifting patients to outpatient services is one of the methods which will allow hospitals to improve their bottom line and survive (Coile 1995, 62). Capitation also provides a strong financial basis to find alternatives to inpatient care (Robinson 1994, 261). As managed care organizations cover increasing percentages of the population, the pressure will increase to reduce costs and the more expensive inpatient utilization will continue to decline (Lumsdon 1994, 30).

Epidemiological patterns are changing as well; acute episodes which require hospitalization are no longer the chief threat. The burden of disease is now carried by chronic conditions which are most effectively treated in outpatient settings, the patient's home or subacute care facilities (Robinson 1994, 260). Diagnostic and therapeutic technologies have allowed an increasing number of procedures to be done non-invasively, eliminating the need for overnight stays (Robinson 1994, 260). Recently the Johns Hopkins Oncology Center initiated a program to conduct intensive cancer treatment on a largely outpatient basis (Continuum of Care 1995, 14).

In 1972 Victor Fuchs wrote that high costs were attributable to overutilization, inefficiency and excess capacity (Fuchs 1974, 81). Hospital size in relation to efficiency receives various support. Some cite 200 beds as the most efficient, others reference 500 beds, or over 1,000 beds, although some argue that 1,000 beds is too big to be truly efficient (Fuchs 1974, 82). In 1989 there was 1,054 U.S. teaching hospitals with an average size of 370 beds, an average occupancy rate of 74.6 percent and an average length of stay of 7.5 days; all community hospitals had an average size of 170 beds (Jonas 1992, 53) with an average occupancy rate of 66.2 percent and an average length of stay of 7.2 days (AHA 1995, 3).

The focus of downsizing is often personnel. A majority of the literature centering on how downsizing was accomplished centers on personnel issues. "Communicate, communicate, communicate," this is the charge given to any organization planning a merger (Peterson and Fisher 1991, 43); however, this is also supported by those who have experienced a reorganization or downsizing. Clearly the size of a hospital and its mix of inpatient and outpatient services affect various resources of a hospital. The most important of these are the human resources, the personnel who provide the care and support the care provided.

Often, the intent of downsizing or reorganization is cost reduction, and the most identifiable source of cost savings is a reduction of personnel. Personnel costs account for approximately 60 percent of the operating budget of a hospital (Moore 1994, 49). As has been found with the federal budget, tweaking the structure on the margins cannot generate the amount of savings necessary in today's environment (Fritz and Vonderfecht 1994, 68). Because of these facts, easily identifiable costs and a high percentage of the overall cost, personnel are often the first cut made when downsizing. In addition, because of declining utilization, hospitals no longer require the intensity of staffing they once needed (Mullaney 1989, 41). In a 1993 survey of 1,147 hospitals, 27 percent were decreasing the size of their staffs (Moore 1994, 48). When trying to cope with their financial crisis, the Los Angeles County Health Care System handed out 5,200 layoff notices (Green 1995, 1). Personnel layoffs are intended to reduce costs while transforming the organization into a more efficient machine, but what often results is a sad and angry organization populated by depressed survivors (Moore 1994, 48).

Everyone is adversely affected, including those who remain at work (Moore 1994, 50). The impact on personnel must be considered and dealt with. Goals involving work force reduction must be clearly stated and evaluated (Weber 1994, 24). These goals must then be clearly communicated to those making the decision as to which positions are to be cut and to the employees, all of whom deserve a clear and honest explanation (Weber 1994, 24,26).

Finally, when staff reductions are considered, the risk management trade off--what is too much versus what is too little--must be considered. Management must be careful not to reduce staffing so much that patient care, and the reputation and future of the hospital, are jeopardized (Mullaney 1989, 42).

d. Purpose

The purpose of this paper is to address the managerial aspects of the activities associated with determining the optimal level of inpatient capacity within WHMC. The specific tasking to the rightsizing teams was (1) to reduce the setup beds from 600 to 350 or less by 1 December 1996 and (2) identify the most cost effective use of the space and staff which were made available by this reduction. The specific focus was the activities of the medical/surgical continuum of care rightsizing team. This was one part of a larger rightsizing effort which included teams addressing both the maternal/child and mental health continuums of care. The civilian world is downsizing inpatient capacity and cranking up outpatient capacity, why shouldn't the military do the same? The current military and health care environment dictates that WHMC make effective use of its limited resources. Not only are resources limited, but they are likely to be reduced in the future. The pressure to control costs and improve access, as in the civilian world, indicates the need to reduce reliance on inpatient services and increase utilization of outpatient services. To effectively use the resources allocated to WHMC, the inpatient capacity/capability must be evaluated to determine the optimal size and mix of inpatient services. The basic purpose is to determine how many inpatient beds WHMC should maintain to support the type of inpatient services to be provided. This effort is not intended to rightsize the San Antonio military medical community or TRICARE Region VI.

II. Method and Procedures

The first phase of the project utilized historical data to establish the imperative to rightsize WHMC. As part of this process, a baseline was established using historical data to determine the minimum bed capacity required under current practice patterns. Data was extracted from the Daily Census Report and the Cumulative Census Report. The Cumulative Census Report is a monthly compilation of daily census reports produced by the Nursing Department. These reports list bed status and acuity level by nursing unit for that particular day. This will be the “what does the data say about the census?” portion of the project. Bed status simply provides the patient census at the time the report is produced. Either the bed is occupied or it is not occupied. The reports are produced at 1400 daily. Acuity level is a categorization of patients according to the nursing care hours they require. The acuity level is a seven category scale based on points earned in a patient assessment utilizing the Workload Management System For Nursing (WMSN) - General Worksheet. Category definitions are as follows:

Category 0 - Pass/Liberty

Category I - Self-Care/Minimal Care

Category II - Moderate Care

Category III - Acute Care (one staff to three patients)

Category IV - Intensive Care (one staff to two patients)

Category V - Continuous Care (one staff to one patient)

Category VI - Critical Care (one staff to one patient)

Patients are to be classified at least once daily. Additional information about the acuity system can be found in the WMSN Reference Manual dated June 15, 1989 and published by the Joint Manpower Office of the Office of the Assistant Secretary of Defense for Health Affairs.

The second phase will consist of the efforts of a multi-disciplinary team tasked with rightsizing WHMC (This project focuses on the effort of the medical/surgical continuum of care group). Their task is two fold, first determine how to create a medical center of 350 beds or less, and secondly reallocate the excess resources to the outpatient setting. The separate groups will approach the task from three major product lines, medical/surgical, maternal/child and mental health. Oversight for these groups is provided by the Administrator, the Quality Office, and the Commander. These groups will focus on utilization management, discharge planning, nursing practice, medical practice and graduate medical education. The pending merger of services with BAMC will be considered for current impact but the focus of this paper is the rightsizing of the current services provided by WHMC, not the rightsizing of the San Antonio military medical community or the TRICARE Region VI medical community..

III. The Results

The analysis of historical Average Daily Patient Load (ADPL) and Average Length of Stay (ALOS) creates a clear imperative to rightsize WHMC. In the data collection period of 1 April 1995 through 28 January 1996, the maximum patient census was 428 with a daily average of 316. This is compared with the more recent time period of 1 September 1995 through 28 January 1996, the maximum patient census was 351 with a daily average of 286. These figures are compared with an operational capacity of 528 as of 12 February 1996. In light of these

statistics, the efforts of the three rightsizing teams resulted in a concept plan for an operational capacity of 326 beds. This is the result of “cutting the fat,” as indicated above, changing admission patterns, and implementing new practice patterns to more closely match benchmarked facilities in the ALOS arena.

a. Historical Data Analysis

The nursing department of WHMC utilizes the Nurse of the Day System (NODS) to track patient census, acuity level and available beds. The resident utilized two reports to collect data for this project. The first was the monthly Cumulative Census Report which provides cumulative totals, by unit, for the month; available beds, occupied beds and acuity level. The second was the Daily Census Report which provides the daily information by unit; available beds, occupied beds and acuity level. Each nursing unit is responsible for entering its own data into the system. It is acknowledged that the units update data as time allows. It is probable that there is some lag time between an admission or discharge and the NODS update. Consistency in the acuity level rating is maintained through the use of the criteria outlined in the WMSN reference manual. Validity, the system measures what it is supposed to measure, and reliability, the score is not subject to chance variation, has been statistically proven. A Pearson Product Moment Correlation coefficient of .81 was found between the WMSN and the Sherrod Nursing Care Hour Standards study tool (Health Affairs 1989, 3). This indicates a strong correlation exists between the two methods of rating. Inter-rater reliability of total acuity scores yielded a Pearson Product Moment Correlation coefficient of .93 between staff nurses and investigators involved in WMSN research

(Health Affairs 1989, 3). This high correlation indicates strong agreement between the different raters and thus a high level of reliability.

The cumulative average occupancy rates were calculated using only data for those units which are currently open. Therefore this is not the cumulative average occupancy rate for what was a 800 bed hospital and is now a 593 bed hospital. The average occupancy rate calculated is only for the current units and there status over the past five years. This calculation revealed a cumulative average occupancy rate for the five year period of 59 percent (349 beds occupied) with an average acuity level of 3.35 on a six point scale. Figures for the most recent year (December 1994 - December 1995) were a 49 percent (290 occupied beds) average occupancy rate and an average acuity level of 3.79. Finally, for the most recent month (December 1995), the average occupancy rate was 42 percent (249 occupied beds) and the average acuity level was 3.82. This data varies slightly from the daily census data because the available capacity (i.e., the denominator) for the cumulative average census was not consistent from month to month. This information does however identify the same trend of a consistently declining inpatient census.

Daily data was collected for the period 1 April 1995 though 28 January 1996. This data was broken into two periods to further identify the trend of a continually lower average census. The average census for the ten month period (April - January) was 316 with a standard deviation of forty-five, 68 percent of the time the census fell between 271 and 361. This was reduced to an average of 286 with a standard deviation of thirty-nine, 68 percent of the time the census fell between 247 and

Table 5 - Average Census - Total

Average Daily Census - Total		
	Apr 95 - Jan 96	Sep 95 - Jan 96
Average	316	286
Maximum	428	351
Minimum	175	175
Std Dev	45	39
Source: NODS - Daily Census Report		

325, for the five month period (September through January). A frequency distribution indicates only 2 percent of the days between 1 April 1995 and 28 January 1996 had a daily census greater than three hundred fifty-one. The greatest concentration was for the interval 321 to 350, where 30 percent of the total fell. Similar information was extracted from the data produced

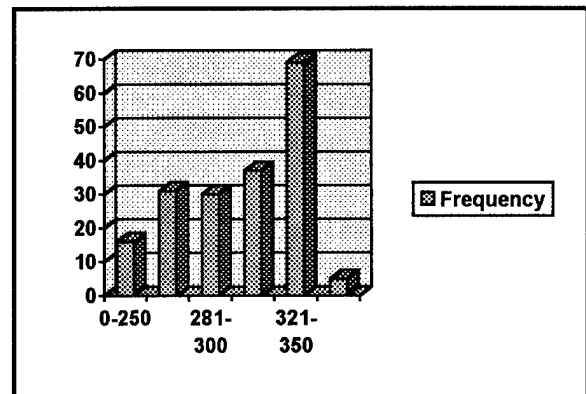


Figure 1 - Frequency Distribution

by each individual unit. Unit 6A, a General medicine unit, has a capacity of forty-seven beds and a five month average census of twenty-six patients. The standard deviation calculation revealed that 68 percent of the time the census fell between twenty-one and thirty-one. The frequency distribution revealed that 77 percent of the time the census was below thirty. As another example, unit 5C, General Surgery, had a capacity of twenty-eight patients and an average census of fourteen. The frequency distribution revealed that 78 percent of the time the census was less than twenty. The standard deviation calculation placed 68 percent of the days having a census between eleven and seventeen. This data was compiled for each inpatient unit and the results were similar.

Utilizing only historical data a number of base lines were created to begin considering appropriate size. As has already been mentioned the average total occupancy utilizing the daily data was 286 for the period 1 September 1995 through 28 January 1996. The sum of the individual unit averages equaled 308. If you subtract the average occupancy figures for the labor and delivery and the nursery units (both of which are not counted in reported bed capacity) the sum is 286. A second baseline was calculated using the maximum census figures for the

September through January time period. The maximum total census was 351 and the sum of the individual unit maximums was 538 (493 when the nursery and labor and delivery units are subtracted). This tells us that if each inpatient unit in Wilford Hall hit its maximum occupancy, from September 1995 through September 1996, on the same day, we have more than adequate space as the beds are currently configured. Finally a baseline was created using the averages plus a single standard deviation, 68 percent of the days in the data collection period would have a census with one standard deviation of the average. The average for the total hospitals plus one standard deviation gives a census figure of 325. The sum of the individual unit averages plus one standard deviation was 404, (372 when the nursery and labor and delivery units are removed from the total). In light of historical data, the arbitrarily established goal of 350 beds or less was a fairly safe target.

Actual bed capacity, defined as staffed inpatient beds, settled out at 528. Depending on the source, this ranged from 528 as reviewed by the medical/surgical team, to 571 as listed by facility management, to 592 as listed on NODS. Not included in these numbers are sixty-five beds associated with the Nursery Intensive Care Unit (ICU) (15 beds), Intermediate ICU (20 beds), Labor and Delivery (10 beds) and Term Nursery (20 beds).

A further look at historical data shows operating beds declined 27% between fiscal year (FY) 89 and FY 95 while the average daily patient load declined 35%. In the same time period enlisted staffing increased 9.15 percent, officer staffing

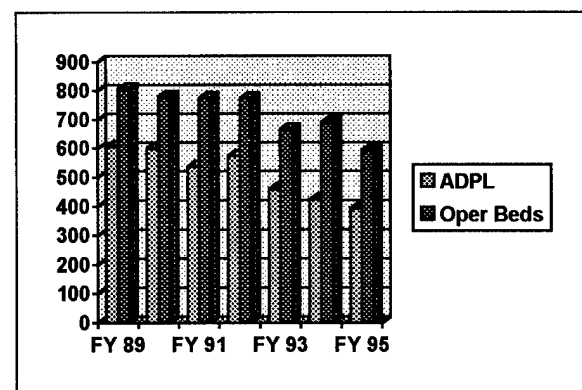


Figure 2: ADPL vs Operating Beds

increased 11.91 percent and civilian staffing increased 38 percent. This is compared with a monthly occupied bed day (OBD) decrease of 35.34 percent and an outpatient visit increase of only 8.22 percent.

As part of the development of the imperative for WHMC to rightsize, a comparison of Diagnosis Related Group (DRG) average length of stay (ALOS) data was conducted by the Resource Management Office. This comparison was done using several arbitrarily selected benchmark facilities. Naval Hospital San Diego, Walter Reed Army Medical Center, CHAMPUS, and All Payers. The comparison of WHMC's ALOS and the lowest ALOS from the comparison group indicated a potential savings of 47,280 occupied bed days. This bed day total is equivalent to 130 fewer beds over a one year period. Data access was available throughout the project to make additional comparisons.

b. Rightsizing Team Effort

On 11 January 1996 the Commander of WHMC signed an appointment letter creating three rightsizing teams. On Tuesday, 16 January 1996, the Commander addressed an audience composed of appointed rightsizing team members and designated internal consultants. Team members were divided into three separate groups; medical/surgical, maternal/child and mental health. The charter presented to the team consisted of two points; (1) to establish a plan of action to reduce the number of inpatient beds from 600 to 350 or less, and (2) to identify the most appropriate use of the space and staff made available by this reduction. Each group was to focus on their particular product line.

Within this process the primary role of the Administrative Resident was to serve as the one common link between the three groups. Secondly the resident served as the link between the three groups and the executive staff. Third, the resident served as a participating member of each group. Finally, the resident wrote this paper as a Graduate Management Project (GMP) to assess the process and its effectiveness in achieving the targeted rightsizing and to lay the foundation for an eventual submission for the Air Force Unit Quality Award and the Chief of Staff Team Award.

As the one common link, communication was an important aspect of the residents role. The whole process was to be a combined effort with a single product but once the three separate groups were established the each pursued their own agenda. Feedback between groups was provided to keep each group appraised of what the others were doing and what overlap may occur. For example, both the medical/surgical group and the maternal/child group were considering outside billeting options to avoid unnecessary admissions. The findings of the medical/surgical group answered the questions presented by the maternal/child group. In addition to communication between the groups, communication between the groups and the executive staff was provided by the resident. This communication provided updates to the executive staff as to the progress of the groups. More importantly it provided a means for the executive staff to validate ongoing processes and to redirect the focus if necessary. Finally, the communication avenue provided access to the thoughts and philosophies of the commander who was the driver behind the entire project. Daily contact with the commander provided the basis to communicate this information concerning the beliefs and philosophies of those guiding WHMC and those which are guiding the Air Force Medical Service.

As a group member the resident participated in the process just as any other group member. This included participation in discussions, brainstorming sessions and strategy sessions. Research was conducted when necessary, specifically historical data concerning patient census information and literature searches to assist the process and identify the current industry trends.

Finally, in addition to being a GMP, this paper was put together as part of the documentation of what was done and why. As rightsizing has recently been gaining increased support within the Air Force Medical Service, it is important to know where we started and why.

Group members were selected by their respective senior Board of Directors (BOD) member; the Administrator, Chief of Professional Services or Senior Nurse Executive. Members were selected on the basis of their expertise in a given area and their perceived ability to think outside the traditional organizational structure found at WHMC. The initial medical/surgical group was composed of twelve individuals. From this initial twelve, one individual was chosen as the group leader. The group was composed of individuals from the following functional areas:

- Surgery (one surgeon, one ophthalmologist, one nurse)
- Medicine (three physicians, two nurses)
- Surgical Resident (one)
- Medicine Resident (one)
- Resource Management (one)
- Enlisted (one surgery technician)

As the project progressed, one civilian (medical social worker) was added to the group.

Internal consultants were selected because of their expertise and position within their functional area. Consultants were designated in the following areas:

- Acute Care (Medical Corps [MC])
- Nutritional Medicine (Biomedical Science Corps [BSC])
- Communications (Civilian)
- Obstetrics (MC)
- Facilities Management (Medical Service Corps [MSC])
- Pediatrics (MC)
- Graduate Medical Education (MC)
- Pharmacy (BSC)
- Information Management (Civilian)
- Quality Improvement (MC)
- Laboratory (MC)
- Radiology (MC)
- Logistics (MSC)
- Resource Management (MSC)
- Medicine (MC)
- Training (Nurse Corps (NC))
- Medical Systems (Civilian)
- Utilization Management (NC)

Each group was provided a facilitator through the Quality Improvement Office. The three facilitators also received a briefing from the administrator, which more clearly defined the tasking and available resources to pursue the rightsizing effort. Each group was responsible for selecting

their own group leader and other support positions (recorder, timer). Each group was also given the leeway to request additional representation if necessary.

Various resources were made available to each group. These resources included administrative support, funding support for research trips to best practice facilities and opportunities to hire consultant services. These resources were intended to alleviate some of the pressure on the group in terms of administrative workload and to provide a means to validate the recommendations developed by the group.

Once the foundation was laid for the three groups, they were given total freedom to develop proposals/recommendations as to the best methods for each product line to achieve the desired rightsizing of WHMC. This foundation consisted of the initial briefings and presentation of data necessary to create the imperative for WHMC to rightsize. The original target date for the bed reduction was 1 December 1996. The original timeline was listed as follows:

<u>Date</u>	<u>Action</u>
16 Jan 96	Kick-Off Meeting
15 Mar 96	Report to Commander (Inpatient Service Interim Plan)
15 Apr 96	Report to Commander (Inpatient Service Final Plan)
1 May 96	Report to Commander (Outpatient Services Interim Plan)
31 May 96	Report to commander (Outpatient Services Final Plan)
Jun-Nov 96	Implementation

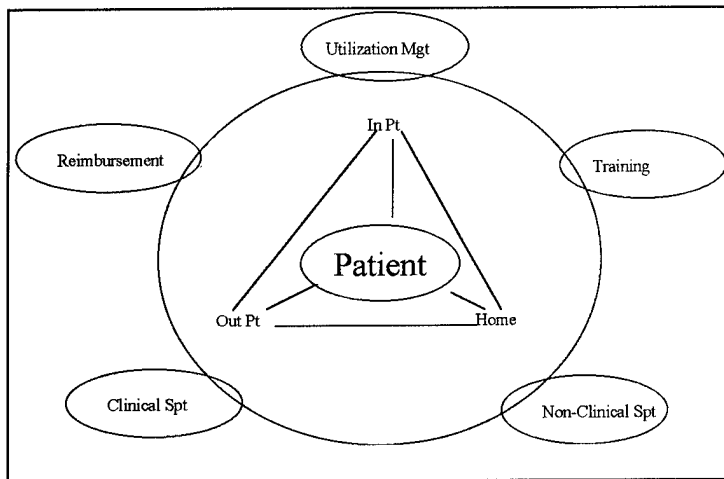
It was noted that, with the approval of the commander, parts of the plan/proposal may be implemented prior to the full development of a plan.

The medical/surgical group approached the task from the perspective of creating (building) a 350 bed (or less) hospital rather than downsizing to a 350 bed (or less) hospital.

Through this process a customer-oriented vision was created. This vision placed the patient in the

center of an access triad consisting of inpatient services, outpatient services and home health care services. This triad was then circled by the support system of training, non-clinical support, clinical support, reimbursements and utilization management. With this vision established, the medical/surgical group

Figure 3 - Customer Orientation Vision



employed a strategy consisting of four main components. First was to apply the experience of the committee members. Second was to do what “we know needs to be done.” Third, assure appropriate admissions and timely dispositions. Finally, shift the focus of the medical center to the ambulatory setting.

The medical/surgical group employed this strategy by first identifying data and information needs. These needs included census data, the influence of graduate medical education (GME), BAMC/WHMC merger impact, manpower and staffing information, current inpatient unit configuration, facility constraints, ancillary support processes and information concerning practice patterns and structure of other facilities (specifically Naval Hospital San Diego). This information was collected and presented to the group.

On two occasions the group used brainstorming techniques to identify critical issues. The first centered around identifying the primary areas of strategic importance. This effort resulted in the identification of four primary areas of strategic importance, these included acuity, access, task analysis/resource distribution and pathways/impediments. Group members were divided among these areas to identify problems and solutions pertinent to the overall task. Inappropriate admissions was a key issue identified by three of the groups. Inappropriate admissions result from poor access to ancillary services, convenience admissions, aeromedical evacuation inefficiencies and administrative inefficiencies. Other issues included the need to develop clinical pathways, the lack of intermediate care capability, utilization of personnel, education of personnel and lack of utilization management/discharge planning.

The second brainstorming session centered around the relationships between the various components of the hospital. It was out of this inter-relational diagram that the aforementioned vision was created.

Historical data, industry trends and personal experience drove this process of identifying elimination, consolidation and practice pattern changes necessary to reach the targeted size. The ultimate result was a structure containing 326 operational inpatient beds (167 medical/surgical beds).

The proposal (concept) developed by the Medical/Surgical Continuum of Care Group was presented to the Commander on 18 April 1996. This was a one month delay from the original timeline. This delay was because of postponements in getting the presentation together and problems in coordinating schedules with the commander and the two other groups. This proposal consisted of the concepts, assumptions and recommendations to meet the tasking presented in the

original tasking letter to reduce inpatient capacity to 350 beds or less. The concept consisted of a three phase process. In the first phase medical/surgical beds are reduced from 374 to

Table 6 - Phase III Bed Count

	Surgery	Medicine	Totals
Critical	10	12	22
Intermediate	6	6	12
Acute	65	68	133
Total	81	86	167

240. The second phase consisted of education and changes of practice patterns. The third phase consisted of the further reduction of inpatient beds from 240 to 167, commensurate with the efficiencies gained through education and reengineering practice patterns and processes.

The operational bed reduction in the first phase of the process is supported by the historical workload data. An average census of 286 does not require an inpatient capacity of 528. The reduction in the third phase is partially support by historical data and also supported y the anticipated benefits of the reduced length of stays, the elimination of unnecessary admissions and the full employment of managed care. Each of these has impacted the civilian inpatient system. Aggressive civilian Health Maintenance Organization (HMO) have reduced inpatient days per 1,000 beneficiaries to 150 (Coile 1995, 62). By using the same ratio for the San Antonio beneficiary population of 191,899 (RAPS, 7 March 1996) you require only seventy-nine beds. This must be tempered by the fact that WHMC is a teaching facility so it requires a case mix much different than an aggressive HMO would pursue. Also, as a worldwide referral center the beneficiary population cannot be linked strictly to those living within the catchment area. Add to this the fact the managed care in the military has not reached the level of an aggressive HMO and we find a required inpatient bed capacity to be far above what might be found in a competitive civilian managed care market but still far below are current level. The final inpatient bed total is a combination of historical trend indications and potential managed care impact balanced by a

population which does not have clear boundaries and a mission which requires inpatient capacity. The bottom line is that there is no direct link between a formula and the final inpatient bed count proposed by the medical/surgical group, it was developed by considering several indicators and the opinions of group members.

The entire concept developed by the medical/surgical group was framed by a number of assumptions. These include:

- WHMC will remain a trauma center
- Quality will be maintained
- No degradation of current readiness mission
- Foundation Healthcare Federal Services (FHFS) will comply with the TRICARE

contract

- Data integrity is poor; inconsistencies exist between collection methods, accuracy of reporting and in some areas, lack of data collection resources

- Staffing will be reduced by eighteen to thirty percent
- Current level of workload will be maintained
- Patient acuity will increase
- WHMC will embrace outpatient activities
- Change will be at a minimal cost to WHMC
- Change will require minimal facility modification
- A product line mentality (no stovepipes) will be adopted

Twelve recommendations were developed to support the creation of a three hundred twenty-six bed inpatient facility. These included:

(1) Create a personnel resource pool. This is to allow personnel to be assigned as needed throughout the facility. Personnel would be assigned horizontally by skill mix according to patient needs. Vertical integration would center on major product lines (i.e., medical, surgical, obstetrics).

(2) Establish a single control point with patient transfer and discharge authority. This position would also act as an impetus to moving patients along their course of treatment within a specific product line.

(3) Enhance readiness through ongoing training, setting the standard at the highest skill level. Also develop multi-disciplinary responsibility between product lines and increase proficiency through cross-training.

(4) Realign positions. Align administrative positions to support clinical management, assign educated patient care managers to micromanage patients and develop a statistically-based outcomes research position to analyze outlier DRG's and clinical pathways.

(5) Create an intermediate level of care by establishing a twelve bed medical/surgical step-down unit.

(6) Create a twenty-three hour observation unit.

(7) Redistribute ancillary personnel for more effective use.

(8) Conduct special studies in billeting, air evacuation process options, and local transportation options.

(9) Enhance outpatient access to avoid unnecessary admissions.

(10) Air evacuation process. This included revising the current manifest process, develop a evaluation/treatment plan prior to entering the system, assign a case manager to each referral,

maximize the use of electronic media (to minimize duplicate testing) and encourage the use of outreach programs.

(11) Develop clinical pathways.

(12) Provider and patient education. Specifically centered around eliminating unnecessary admissions and reducing lengths of stay.

The final piece to the project was the development of metrics to assess the success of implementation. The metrics were divided into three main categories; operating statistics, staff configuration and workload intensity. Categories under operating statistics included bed capacity, inpatient days, outpatient observation unit utilization (looking at treatment, clinic source and duration of stay), pathway development, pathway adherence and length of stay outliers. Staff configuration consisted of the distribution of FTE's and skill mix and ratios of personnel. Workload intensity consisted of admissions (with both source and treatment), patient discharges and transfers, average daily census by unit, length of stay and clinic access times.

The response received from the commander was very positive. He requested additional data to support the alteration of the ICU's. Aside from this one request, his other comments were focused on preparing the briefing for presentation to the board of directors and then the entire staff of WHMC on 17 May 96.

IV. Discussion

An initial glance would reveal that rightsizing seems a fairly simple and straightforward task. Historical workload clearly provides the imperative to change as well as easy targets for inpatient rightsizing. Although it may be relatively easy to identify the first eighty to one hundred

beds where rightsizing is clearly needed, practice patterns and admission policies must change to support more extreme efficiency efforts. What is the optimal mix of beds? Where are negative flow rooms required? Will two separate sets of patients create an infection danger when in close proximity to each other? What modifications are necessary to change the physical layout of a unit? What is the personnel impact? These are a few of the issues which arose during the development of the proposal.

This discussion addresses the managerial aspects of this project rather than the technical/medical aspects of the project. Also, this discussion takes the project through the concept briefing provided to the commander. Following the presentation the concept was continually refined in preparation for the next presentations, but this is not included in this paper.

a. Historical Data

The historical data collected for this project created the imperative to rightsize WHMC. The combination of a steadily decreasing ADPL with only marginal increases in patient acuity, staffing increases with no, corresponding increase in workload and ALOS data indicating a potential annual bed day savings of 47,280 days (130 beds), when compared to a similar facilities, Naval Hospital San Diego (NHSD) and Walter Reed Army Medical Center (WRAMC), fueled the imperative created by the commander. Each of these by themselves lend support to a rightsizing effort, but taken together the imperative is clear. Rightsizing is necessary, both in light of past and current practices as well as to create a foundation for WHMC to survive into the twenty-first century.

Basic statistical calculations indicate that a 350 bed target is a fairly modest goal. Historical census patterns indicate that in all but a very small number of days this would be more than adequate to meet demand. The monthly cumulative census reports were available dating back to October 1989. The six year average occupancy rate was 59 percent for those units currently open. This is compared with the most recent year (December 1995 - December 1996) with an average occupancy rate of 49 percent. Out of 530 staffed inpatient beds, only 260 are occupied at any given time. When looking at individual units, WHMC ranges from a low occupancy rate of 3 percent in the neonatal ICU (2EICU) for the last year to a high of 81 percent in one of the medical ICUs (2DL) over the last year. Over the last ten years WHMC has slowly reduced the number of operational inpatient beds while staffing has increased without a commensurate increase in outpatient workload. This is one contributor to the imperative to rightsize WHMC. Excess capacity leaves two options, reduce the capacity or increase the workload. Industry standards indicate a move toward reduced inpatient workload, much of it being shifted to the outpatient setting. This is the shift that the rightsizing team was tasked to accommodate.

The daily census information collected from 1 April 1995 through 28 Jan 1996 support the very same conclusion as does the cumulative monthly census data. WHMC has inpatient capacity in excess of inpatient needs or demand. With an average census running 240 beds below capacity (Capacity: 530, Average Census: 286) significant room is left to better utilize inpatient resources based on historical data alone.

The ALOS comparison by DRG revealed a potential savings of 47,280 bed days when compared with the benchmarked locations (NHSD, WRAMC, CHAMPUS and All Payers).

When this information was originally presented it was pointed out that this is nothing more than an indicator of areas requiring research. A lower ALOS does not necessarily indicate a need for a change in practice patterns, but it does indicate a potential opportunity for improvement.

Although an opposing view would point out that these were arbitrarily selected benchmark sources, comparison with the best practice (or lowest) average length of stay facility would likely provide the potential for an even greater bed day savings. Length of stay outliers were one area recommended for further emphasis and research. Additionally there are concerns over the reliability of the data. As with all data systems, the output is only as good as what is entered into the system. Another consideration is the admission/discharge procedures, if WHMC and NHSD do not admit and discharge in the same way, the data will not provide an accurate comparison.. Each of these issues must be considered when comparing data in this manner. Once again, this ALOS data provided a basis for looking at various groupings of DRG's but did not provide the support to immediately make changes.

The actual inpatient capacity settled out at 528 after careful scrutiny from the medical/surgical group. Not included in this total are the sixty-five beds devoted to labor and delivery (ten beds), term nursery (twenty beds) and the neonatal ICU's (level II: twenty beds and level III: fifteen beds). Discrepancies resulted between various reports because of definitions and staffing. The final count of 528 does not include twenty-eight beds designated as same-day surgery, twenty beds which closed in January of 1996 and a miscellaneous group of other beds which, although there may be a bed in the location, is not staffed or used. Labor and delivery beds are not counted because these patients will ultimately end up in a postpartum bed and thus get picked up in the inpatient counts. Term nursery newborns are not considered an admission,

per the American Hospital Association Guide, so these beds are not counted. Consideration should be given to counting the nursery ICU's in the overall bed count and for patient census purposes. These patients are much more resource intensive and are often transferred in from other locations. Considering these patients in the same category as a term newborn is not logical.

b. Rightsizing Team Effort

The initial medical/surgical group meeting, following the commanders introductory meeting, made very clear the different perceptions and understandings present on the part of group members. In general, the team was unsure as to why they were chosen and what they were supposed to accomplish. There was also expressed cynicism as to the chances of developing a plan which would actually be accepted or implemented by the leadership of WHMC. Also apparent was the communication, or lack of communication, which reaches the various levels and departments of the organization. Each of these items played a role throughout the development process.

Group selection, as with any group effort, was critical to the successful completion of the task. For this particular effort, it was very important to have a good mix of those with a global perspective and those with a more narrow, product line or service perspective (i.e., surgery, medicine or ICU nursing). Those with a global perspective were important throughout the process. In the early stages they provided the global view of the pressures on WHMC and what the driving forces were behind this rightsizing initiative. Throughout the course of the project, those with the global perspective were necessary to refocus the group on the task at hand and thus avoid work and effort that was beyond the scope of the project. This translated into the

ability to keep the group moving down the path to completion as opposed to getting bogged down in extraneous/out-of-scope issues. To balance those with the global perspective, the bulk of the group members possessed a more narrow focus and the expertise necessary to understand the impact of the various proposals on their individual sections. The Commander also thought it important that the middle level and junior level personnel develop this plan. The middle level and junior level would be the ones who would have to live with the changes for a longer period of time. Those in senior positions will not be those around to live with the changes made through these proposals. Also, when presenting, it was not the Commander or Board of Directors who developed the plan, it was contemporaries of those in the audience. Another important aspect of the composition of the group was the inclusion of different interest groups (i.e., physicians, nurses, technicians and administrators). This broad range of representation is another important ingredient for gaining acceptance from the staff of WHMC.

The initial forming stage for this group was difficult in that most of the members were struggling with what exactly it was they were to accomplish. Even with the Commander's introduction, group members were apprehensive about the task and their role in the process. The cynicism stemmed from previous efforts to make changes at WHMC. Historically, efforts at rightsizing or downsizing had encountered immovable road blocks when proposals and concepts encroached on the wrong territory. Past efforts had been blocked by one individual or department determining that the best thing for them was to protect what they had. To alleviate this territorialism and possible blocking of any rightsizing action, the group agreed upon a confidentiality (do not talk outside of the meeting) policy. This goes against some of the communication recommendations in the literature as to what to do to make change work. Clear,

honest and timely communication was cited by The Medical Leadership Council as the best method to maintain morale. Secondly, employees should be aware of the underlying reasons for the initiatives. Communication by itself should alleviate most of the potential problems. The intent of not talking was to avoid individuals and departments circling their wagons prior to completion of the plan. Physician participation was another means cited by The Medical Leadership Council to minimize confusion. It is clear that buy in from the organization is more likely if "one of your own" was involved with the development. This reinforces the need to carefully select those who are appointed to participate in a project of this magnitude. As further protection against potential roadblocks, the strategy was to brief the Commander first, prior to any other individual or group. This initial briefing was a concept briefing. Once the commander supported the concept, it became "the commander's plan/concept." From that point forward, it was to become the commander's concept/plan which was being briefed. As the commander's proposal, obstacles which might originally have been major road blocks would become minor speed bumps. The magnitude of the changes caused command support to be imperative to the presentation of the proposals/plans, not to mention the implementation. Another consideration was timing. This project must be completed on the timeline to take advantage of the current atmosphere; a Commander who wants this to happen and fiscal and staffing pressures which make rightsizing an imperative.

The presentation sequence for the concept itself was to first present the concept to the Commander. Once the commander accepts the concept, the concept then becomes his for future presentation. The commander's concept was to be taken to the Board of Directors, an expanded WHMC Offsite group, and eventually the entire staff of WHMC. The intent is to slowly gain a

broader circle of support and thus refinement to the plan. As each group has the plan presented, tweaking will take place to continually improve the concepts and the actions.

The initial concept briefing took a four element approach. First, present the vision, this lays out the picture which the audience will take away from the briefing. In this case it was the diagram placing the patient at the center of all activities at WHMC. Secondly, an up-front statement of recommendations which tells exactly where the presentation is going. This also allows the audience to assess the briefing in light of the desired result. Third, state the assumptions which frame the recommendations. These assumptions state what is believed about the current situation and how we expect the future situation to develop. These are the assumptions which can be looked back at from some point in the future and aid determination of why something did or did not happen as it was planned. Assumptions may change over time, or may turn out to be false. This then changes the entire proposal or expectation of the proposal. The final piece is an action plan which includes metrics to assist in determining if the plan is performing as expected.

The second imperative for moving quickly centered around timing involving personnel and funding. Rumors, and actual funding cuts and personnel cuts contributed to the vision of a smaller more outpatient focused WHMC. The Commander's view was that if WHMC does not rightsize, and if the Air Force Medical Service does not rightsize, the military medical service will not survive. This vision is of course based on the assumption that it is desirable to maintain a productive military medical service.

This uncertainty and apprehension surrounded the initial start up phase of the rightsizing process. Given the short time suspense, the appointed groups did not have much time for the

traditional group development pattern of “forming, storming, norming and performing” to emerge. The forming phase took the first three to four meetings. This phase concentrated on understanding the tasking and on setting the standards for group members. Standard rules concerning courtesy and respect for the opinions of others were established. Two difficulties encountered early in the process were the questions of group leadership and membership. In the first several meetings no single individual stood out as the group leader. Apprehension, uncertainty and possibly lack of understanding of the tasking led to an early lack of active participation by the members. The absence of active participation led one individual to accept the group leader position simply to have a leader, initially no one was willing to step forward.. Two meetings later the group leadership changed, without the group or the initial leader being aware of the change. This change occurred outside of the team meeting and between a more senior member of the group and the eventual leader. This occurred partially to take the burden off of the one who stepped forward and mostly to place the initiative on someone who was better prepared for the task. This caused no conflict within the group, but did add to the initial uncertainty surrounding the process. As the project progressed, it became clear the group leader position is not only critical to the success of any group, but this project would never have materialized if it weren't for the personality and drive of the group leader. This initial participation problem, as well as the leadership change, may have delayed the productive phase of the meetings by two weeks. Although this delayed some of the progress, it was probably inevitable. This time was required to get people settled into what needed to be done. This initial start up delay actually benefited the group by not allowing them to jump too quickly into the middle of the project.

Membership was the second early question. Group appointments had been made, with several positions identified but names not yet chosen (i.e., an enlisted representative, a surgery resident). It was left up to the group to identify individuals to fill these positions. In this instance, it worked well in that individuals were quickly selected and they missed very little time. The group was also given the freedom to request additional representation if they deemed it necessary. The one position which was not identified at the start was a civilian. This position was not necessarily critical to the development of the concept, but was critical from the representation aspect. Civilians make up a full one fifth of the personnel of WHMC, and this position provided them representation. The one drawback to not identifying all group members from the start was that additional personnel had to go through the "why am I here?" phase by themselves and in the middle of the active, productive group time.

Group participation and retention were factors that impacted the group and its final product. Participation was consistent from most of the group; however, even with an appointment letter signed by the commander stating this is your priority, some members came intermittently or not at all. Although this may not have impacted the final product, these individuals were chosen for a reason--knowledge and expertise--and with the full knowledge (by those choosing them) that this would impact their patient care availability. A second issue was the retention factor. At least three members of the medical/surgical group had retirement dates no later than June of 1996. Several other members were set to permanently change stations over the summer of 1996. Once again, this may not have impacted the project, but this knowledge base will be gone in the middle of the implementation phase.

The process employed by the medical/surgical group was to build a 350 bed (approximately) inpatient structure for WHMC. The task was not viewed as *what can we cut* to get down to the three hundred fifty bed level, but *what do we need to create*, to meet the needs of our population. Coincidentally, the structure created amounted to 326 beds. This strategy lends well to presenting the concept to the hospital where it is not presented as a *negative we are cutting this*, but rather a more positive *this is what we are building*.

The first step taken by the medical/surgical group was to request data and informational briefings to bring everyone up to speed on the current activities at WHMC. They sought to determine what was occurring now and what is going to occur that would impact the rightsizing of WHMC. Data included historical workload and manpower and staffing information. It was this information that laid the foundation for the assumptions which framed the entire concept/proposal. The historical data and associated trends provided the basis for workload projections and reinforced the ability to cut the fat in the first phase. It was also the comparison of this workload data with other facilities and industry standards which provided the basis for the final bed count of 326 beds.

The various briefings were provided to update the group about current developments and provide information concerning ongoing initiatives which may impact or supplement rightsizing initiatives. Graduate Medical Education (GME) was considered a critical issue. As a teaching hospital, much of what happens at WHMC is a direct result of the education mission. An early comment by the Commander stated that faculty would have to change the way they teach. This means much closer contact would be required between the faculty and the resident to teach the same skills and practice patterns as are practiced in a non-academic environment (i.e., shorter

lengths of stay, a greater outpatient emphasis). In relation to a smaller inpatient facility, the Residency Review Commission (RRC) is not basing accreditation on bed size but on number of procedures performed. Under this format, a surgery is a surgery whether it is done on an inpatient or outpatient basis. The bottom line for the Director of Education was that the survival of WHMC cannot be contingent upon the survival of various GME programs. In other words, build the hospital and let GME fit within the structure.

A second critical issue was the ongoing merger of GME programs and services with BAMC. The majority of this impact had to do with the maternal/child arena. Any impact in the medical/surgical arena was space neutral (i.e., WHMC sent services to BAMC and BAMC sent an equal amount to WHMC). There were several programs being discussed as this project progressed, but none which would impact the core requirements (i.e., pure medical/surgical beds versus hematology/oncology beds or bone marrow transplant beds).

Manpower and staffing, along with space and bed placement, were two important areas to determine what exactly WHMC has and where it is located. The personnel piece was important to determine current requirements and potential realignment options. It was determined that the manpower standards currently used by the Air Force did not match the new methods of practicing medicine which this group was tasked with creating. Rightsizing WHMC could not occur while maintaining traditional staffing levels and methods, as found in the Air Force Manpower Standards..

Information concerning the physical structure was important in the realignment and relocation of various units. The identification of facility wings most suited to inpatient activity and those that were poorly designed for inpatient use were valuable for the final design. Another

consideration had to do with potential modifications and other structural limitations. The ability of a 1950's era building to meet requirements for 1996 operations prevented dramatic changes. Also, the potential cost of modifications was a consideration when realigning the internal structure. These considerations were taken into account and proposals were made with an emphasis of little to no facility modifications being necessary. The physical structure was a big stumbling block when considering billeting options. The ideal situation would be to have a hotel dedicated to WHMC for those individuals not sick enough to be admitted but not in a situation to go home (usually through the aeromedical evacuation system). Utilizing space within the facility is desirable, but building safety code requirements eliminated this as a possibility.

Medical readiness was considered critical on two fronts: (1) the ability of WHMC to maintain an infrastructure to accept injured personnel and (2) the ability to deploy well-trained personnel. Bed expansion capability is built into the proposal with the close observation and same-day surgery units. Each of these will undergo no changes from a typical inpatient unit. Each unit could quickly be prepared to receive inpatients from a contingency operation. A second option would be a bed expansion capability similar to that found at many Air Force facilities where beds are stored and then set up when needed. Training was the second issue and the need to train everyone to the highest standard was identified as the method to ensure deployment-ready personnel, but this was not developed any further.

Utilization Management (UM) is considered an integral piece of the final phase of the project. It is through UM methods that increased efficiencies in health care practices can be realized. It is through these efficiencies that the facility will be able to attain the three hundred thirty bed level. The team viewed UM as broken and non-functional at WHMC. Much of this

was attributed to lack of compliance with our definition of UM by the TRICARE contractor. Suggestions concerning the repair of UM were considered to be outside the scope of the task for the medical/surgical team. UM issues are being worked by both the UM Office and through the Joint Planning Group (JPG). The JPG is the group given oversight to the implementation of TRICARE and managed care at WHMC.

Throughout this process briefings were presented concerning the global picture from higher levels of command. The AF Surgeon General's vision for the AF Medical Service and the WHMC Commander's vision for WHMC were presented. These briefings were provided to keep the group abreast of current developments and initiatives which may impact the rightsizing effort. This was valuable in that it helped the group members realize this rightsizing effort fit in well with the bigger Air Force perspective.

When looking back on the brainstorming sessions and the time devoted to developing an inter-relational diagram, it was well spent. Confusion occurred at the time on the part of the group members as to what exactly they were doing, but what came out of the sessions was integral to the final presentation. It was the brainstorming sessions that helped identify the four primary strategic issues: (1) access, (2) pathway/impediments, (3) acuity and (4) task analysis/resource distribution. The inter-relational diagram session ultimately produced the patient-centered vision presented by the medical/surgical team.

One resource that was considered, but not used, was the outside consultant. The use of an outside consultant was addressed, in the form of a consultant presentation, early in the process and put on the back burner. When the issue received more serious attention, time and money constraints precluded the pursuit of an outside consultant. Several considerations were involved

with the use of a consultant. One is the opportunity to get assistance from an organization who has experience in rightsizing and reengineering. Second would be the advantage of personnel working this issue full time as opposed to working it as an additional duty. Also under consideration was the ability to validate recommendations put together by the group. Finally, there could be merit in having human resources available which could be devoted to compiling the work of the three groups into one final, polished document. The group initially struggled over the need for a consultant and this was partially responsible for postponing the decision. The use of a consultant was not a concept any of the group members had experienced before and it was not clear why a consultant would be valuable. Initially the general consensus was that the group could do fine without a consultant. When it was decided to pursue the consultant, the desired assistance was to review ongoing activities and provide expertise which would lead to successful completion of the rightsizing tasking. Secondly the consultant would assist with the consolidation and finalization of the draft proposals into a program guidance letter. Input to the development of the proposals would include assessing the feasibility, conducting benchmarking to ensure proposals are in line with industry standards, offer suggestions and identify and conduct additional research to support the task. The consultant estimates place the cost for accomplishing this task at approximately 930 consultant hours and a price tag of \$150,000. Initial points of concern with a consultant centered around accountability for time, references and reputation. Ultimately, the outside consultant was not pursued because of the dollar value and the time it would have taken to bring the consultant on board. Contract requirements placed the timing at a minimum of ninety days, and even so, the process left no guarantees that we would get the consultant we wanted.

The opportunity to visit other facilities was not used prior to the presentation of the concept to the Commander. Although not used specifically, when temporarily assigned to other locations group members used the opportunity to gather information concerning operations at other facilities, specifically Naval Hospital San Diego. This is the one facility which was targeted as a similar facility and also one which is in a more aggressive manage care market, and thus has already implemented some of the changes being discussed for WHMC. In regard to a specific site visit, there was a balancing act between going too early and not really getting any useful information (not knowing what you are looking for) and going too late and looking back at wasted time because of something you did not know. The validation of the concepts and plans developed and leading up to the concept briefing appears to be the most effective use of a site visit. Each site is still drastically different, so trying to copy something done at another facility will still require significant alteration to work at your own facility. The process which ultimately was used, although not intentionally, was to wait. Opportunities were utilized when they arose, but a specific visit was not used early in the process.

A final resource which was not used until late in the process was The Medical Leadership Council. The Medical Leadership Council is one component of the The Advisory Board Company located in Washington D.C. The Advisory Board Company is a for-profit think tank which also serves as a research tool for member organizations. Member organizations may request custom research projects. In this case, The Medical Leadership Council conducted a research project entitled "Large Scale Downsizing of Academic and Military Hospitals." The findings were interesting in light of the ongoing project at WHMC. Five general tactics were identified for the successful downsizing of academic medical centers; communication,

benchmarking, physician participation, reengineering and speed (The Medical Leadership Council 1996). Each of these tactics was used in the development of the rightsizing effort at WHMC. A conscious choice was made to keep communication to a minimum through the development of the proposal. Then, as soon as the proposal was presented to the Commander, it was disseminated to the entire organization within one month. When the presentation was disseminated it was not in the form "this is going to happen", but rather in the form "this is the concept, help us think about it and identify any false logic." Benchmarking was used to create the imperative for change required to initiate the project. Benchmarking initially focused on DRG comparisons, but practice patterns and facility structure were considered throughout the project. The report emphasized the need to use similar facilities for comparison, this was done with the use of other military facilities with a teaching mission. Physician participation was present from the start. Five physicians were part of the original appointment to the medical/surgical rightsizing group. Within the reengineering component several tactics were identified. These tactics included the decentralization or centralization of services, the development of multi-skilled laborers, the use of nurse management models and patient focused care, each of these were used and included in the final concept. The last tactic was speed. The requirement to downsize (rightsized) as rapidly as possible was present in the short time frame originally set up for development and implementation. The consideration given by the medical/surgical rightsizing team to each of these strategies points out the effectiveness with which this rightsizing process took place.

V. Conclusions and Recommendations

WHMC has excess inpatient capacity. The survival of WHMC in the present and future health care environment, both locally and nationally, requires that WHMC rightsize. Rightsizing should include the reallocation of excess inpatient capacity to the outpatient, and outreach, setting. The full implementation of the concepts and proposals of the three rightsizing groups will result in the creation of a 326 bed inpatient facility with a greatly enhanced outpatient and outreach capability.

Rightsizing makes sense. Historical workload supports rightsizing. Industry trends support rightsizing. Military trends support rightsizing. Everything encountered in the current environment supports rightsizing. The only likely resistance to rightsizing will come from within the facility and the Air Force. The creation of a 326 bed inpatient facility from what was, less than one year ago, a 600 hundred bed inpatient facility, will require some substantial cultural changes. First, WHMC will no longer be the biggest (i.e., most beds). Convenience admissions for outpatient procedures must become a practice of the past. Services or departments organizing schedules and procedures around their own internal schedules must become a practice of the past. The possible educational benefit of keeping the patient in the hospital for a few extra days must become a practice of the past. Saving the discharge order for tomorrow must become a practice of the past. Admitting a patient for observation purposes must become a practice of the past.... the list could go on and on. The point is that every aspect of patient care at WHMC is going to experience some form of change.

This necessary change must be viewed and presented as an opportunity or challenge rather than a threat. The literature is full of information concerning change. Change is scary. Change is good. Change is difficult. Change must come from the bottom up. Change must come from the top down. Change is resisted. Change is welcomed. Change of pace, change of scenery, change of primary care manager, permanent change of station, change of address, change for change sake alone, change, change, change, change, change, change. What about change? Change is everywhere and present in every aspect of our life. Why is change so difficult?

At WHMC, change of this magnitude must be driven from the top. WHMC is so large that change of this magnitude will only happen at the direction and push of the commander and board of directors. With a staff of nearly 5,000, WHMC has so many potential pockets of resistance that a top driven, quick moving rightsizing initiative is the only kind that is going to happen. The simple act of communicating the rightsizing concept will take a considerable push and then subsequent reinforcement. Past the act of communicating the concept, personnel need to understand what is behind the concept. Agreement and approval may not occur, but understanding is necessary.

Even if the proposals of the rightsizing groups are accepted and approved by the commander, board of directors, and staff, work still remains to be done. Part of the original tasking was to reallocate the resources made available by the inpatient rightsizing to the outpatient setting. The exact number of available resources is yet to be determined. Also, although much of the talk for the inpatient rightsizing included consideration for changes in the outpatient setting, no specific work has been done about how the structure of the outpatient services will be changed. Although the medical/surgical group has not worked specifically on the

outpatient piece of rightsizing, many groups are already working on improvements for access, customer service orientation and the referral processes, to name a few. The point is that the medical/surgical group may not need to address the outpatient piece. What is needed is a coordination effort for those groups already working in the outpatient arena to bring all the pieces together to support the inpatient rightsizing. Certainly if holes are then identified they must be filled in. As one group member put it, "as we create a smaller inpatient facility, the safety net must be in place to catch those who previously would have been admitted." As was mentioned earlier in this paper, rightsizing WHMC is much more extensive than looking at the census and structuring the inpatient size to accommodate it. Each change to the inpatient services requires a corresponding adjustment to outpatient services. It is only through these changes, at all levels and in all areas, that WHMC can position itself to survive into the twenty-first century.

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